

Listing of Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A wafer carrier assembly for use in a chemical mechanical polishing system, comprising:

wafer carrier support frame;

wafer carrier head housing rotatably mounted on said wafer carrier support frame;

wafer carrier base;

compartmentalized flexible member coupled to the wafer carrier base and defining a plurality of concentric chambers;

a retaining ring, operatively connected to a retaining ring bearing which allows relative axial motion while constraining relative radial motion between said retaining ring and said wafer carrier head housing;

a retaining ring bellows operatively ~~connecting~~ connected to said retaining ring bearing to urge said retaining ring against a polishing member; and

a bladder bellows operably connecting said wafer carrier base to said wafer carrier head housing such that rotational torque is transferred from said wafer carrier head housing to said wafer carrier base,

~~and~~ wherein ~~the~~ a chamber formed by said bladder bellows, said wafer carrier base, and said wafer carrier head housing may be pressurized to load said wafer carrier base and compartmentalized member against the polishing member, independent of any frictional loads on said retaining ring,

and wherein the compartmentalized flexible member has a lower surface providing a wafer receiving surface with a plurality of inner portions associated with respective ones of said plurality of concentric chambers such that pressures within each of said chambers are independently controllable.

2. (Original) The wafer carrier assembly of claim 1 wherein said retaining ring bearing is a flexure member.

3. (Original) The wafer carrier assembly of claim 1 wherein said retaining ring bearing is a hydrostatic bearing.

4. (Original) The wafer carrier assembly of claim 1 wherein said retaining ring bellows is pressurized to a pressure in the range of about 0 to 40 psia.

5. (canceled)

6. (Original) The wafer carrier assembly of claim 1, further comprising:
a mounting flange connected to said wafer carrier support frame, said mounting flange having a substantially vertical through-bore;

a cylindrical head shaft rotatably connected to said mounting flange and concentrically disposed in said through-bore; and

an electric motor having a stator mounted on said mounting flange and a rotor mounted on said cylindrical head shaft.

7. (Original) The wafer carrier assembly of claim 5 wherein the flexible member includes first, second, third and fourth flanges, each flange being secured to a lower surface of the base to define first, second, third, and fourth chambers, respectively.

8. (Original) The wafer carrier assembly of claim 7 wherein said first chamber is circular and has a radial width of about 30 mm, said second chamber is annular and has a radial width of about 30 mm, said third chamber is annular and has a radial width of about 25 mm, and said fourth chamber is annular and has a radial width of about 15 mm.

9. (Original) The wafer carrier of claim 1 wherein said bladder bellows is pressurized to a pressure in the range of about 0 to 40 psia.

10. (canceled)

11. (canceled)

12. (Amended) The wafer carrier assembly of claim ~~11~~ 6 further comprising:
a tubular conduit extending concentrically within said head shaft, said tubular conduit including a plurality of passageways for coupling fluid lines to independently pressurize said bellows and said plurality of chambers.

13. (canceled)

14. (canceled)

15. (canceled)

16. (New) The wafer carrier assembly of claim 1 further comprising:
a plurality of concentric rigid supports coupled to the wafer carrier base; and
wherein said compartmentalized flexible member has a plurality of concentric flanges
coupled to the plurality of concentric rigid supports to define the plurality of concentric
chambers.

17. (New) The wafer carrier assembly of claim 16, further comprising:
a second flexible member between the plurality of concentric rigid supports and the wafer
carrier base, and said plurality of concentric rigid supports are coupled to said second flexible
member;

wherein said wafer carrier base is provided with a plurality of concentric channels and
defines a plurality of concentric chambers with said second flexible member.

18. (New) The wafer carrier assembly of claim 17 further comprising means for
independently controlling pressures within said plurality concentric chambers defined by said
wafer carrier base and said second flexible member.

19. (New) The wafer carrier assembly of claim 1 further comprising:
a plurality of concentric tubular rings between the wafer carrier base and the
compartmentalized flexible member to define the plurality of concentric chambers.

20. (New) The wafer carrier assembly of claim 19 wherein each of the plurality of
concentric tubular rings is provided with at least a pair of restrictors so that one of the plurality
concentric chambers is in fluid communication with a neighboring concentric chamber.
